

CLAIMS

1. A ferrite magnetic material, characterized in that:
a main constituent has a compound represented by composition formula $AFe^{2+}_aFe^{3+}_bO_{27}$ (wherein A comprises at least one element selected from Sr, Ba and Pb; $1.5 \leq a \leq 2.1$; and $12.9 \leq b \leq 16.3$):
a first additive comprises a Ca constituent (0.3 to 3.0% by weight in terms of $CaCO_3$) and/or a Si constituent (0.2 to 1.4% by weight in terms of SiO_2); and
a second additive comprises at least one of an Al constituent (0.01 to 1.5% by weight in terms of Al_2O_3), a W constituent (0.01 to 0.6% by weight in terms of WO_3), a Ce constituent (0.001 to 0.6% by weight in terms of CeO_2), a Mo constituent (0.001 to 0.16% by weight in terms of MoO_3), and a Ga constituent (0.001 to 15% by weight in terms of Ga_2O_3).
2. The ferrite magnetic material according to claim 1, characterized in that the amount of Al constituent is from 0.1 to 0.9% by weight in terms of Al_2O_3 .
3. The ferrite magnetic material according to claim 1, characterized in that the amount of W constituent is from 0.1 to 0.6% by weight in terms of WO_3 .
4. The ferrite magnetic material according to claim 1, characterized in that the amount of Ce constituent is from

0.01 to 0.4% by weight in terms of CeO_2 .

5. The ferrite magnetic material according to claim 1, characterized in that the amount of Mo constituent is from 0.005 to 0.10% by weight in terms of MoO_3 .

6. The ferrite magnetic material according to claim 1, characterized in that the amount of Ga constituent is from 0.02 to 8.0% by weight in terms of Ga_2O_3 .

7. The ferrite magnetic material according to claim 1, characterized in that in the composition formula, $1.6 \leq a \leq 2.0$; and $13.5 \leq b \leq 16.2$.

8. The ferrite magnetic material according to claim 1, characterized in that Sr and Ba are both present as the element A.

9. The ferrite magnetic material according to claim 1, characterized in that the ferrite magnetic material constitutes any of a ferrite magnet powder, a bonded magnet as a ferrite magnet powder which is dispersed in a resin, and a magnetic recording medium as a film-like magnetic phase.

10. The ferrite magnetic material according to claim 1, characterized in that the ferrite magnetic material comprises a main phase of W-type hexagonal ferrite.

11. The ferrite magnetic material according to claim 1, characterized in that the ferrite magnetic material has both a coercive force (HcJ) of 3.0 kOe or more and a residual magnetic flux density (Br) of 4.0 kG or more.

12. The ferrite magnetic material according to claim 1, characterized in that the ferrite magnetic material has both a coercive force of 3.3 kOe or more and a residual magnetic flux density of 4.6 kG or more.

13. The ferrite magnetic material according to claim 1, characterized in that the ferrite magnetic material comprises a main phase of W-type hexagonal ferrite, and contains the Ga constituent of 15% by weight or less (excluding zero) in terms of Ga₂O₃.

14. The ferrite magnetic material according to claim 13, characterized in that the ferrite magnetic material comprises a main constituent having a compound represented by composition formula $AFe^{2+}_aFe^{3+}_bO_{27}$ (wherein A comprises at least one element selected from Sr, Ba and Pb; $1.5 \leq a \leq 2.1$; and $12.9 \leq b \leq 16.3$).

15. The ferrite magnetic material according to claim 13, characterized in that the ferrite magnetic material comprises a main constituent having a compound represented by composition formula $AZn_cFe_dO_{27}$ (wherein A comprises at least one element

selected from Sr, Ba and Pb; $1.1 \leq c \leq 2.1$; and $13 \leq d \leq 17$).

16. The ferrite magnetic material according to claim 14 or 15, characterized in that the amount of Ga constituent is from 0.02 to 3.0% by weight in terms of Ga_2O_3 .

17. The ferrite magnetic material according to claim 14 or 15, characterized in that the amount of Ga constituent is from 3.0 to 8.0% by weight in terms of Ga_2O_3 .

18. A ferrite sintered magnet, characterized in that:

a main constituent has a composition represented by composition formula $\text{AFe}^{2+}_a\text{Fe}^{3+}_b\text{O}_{27}$ (wherein A comprises at least one element selected from Sr, Ba and Pb; $1.5 \leq a \leq 2.1$; and $12.9 \leq b \leq 16.3$);

a first additive comprises a Ca constituent (0.3 to 3.0% by weight in terms of CaCO_3) and/or a Si constituent (0.2 to 1.4% by weight in terms of SiO_2); and

a second additive comprises at least one of an Al constituent (0.01 to 1.5% by weight in terms of Al_2O_3), a W constituent (0.01 to 0.6% by weight in terms of WO_3), a Ce constituent (0.001 to 0.6% by weight in terms of CeO_2), a Mo constituent (0.001 to 0.16% by weight in terms of MoO_3), and a Ga constituent (0.001 to 15% by weight in terms of Ga_2O_3).

19. The ferrite sintered magnet according to claim 18, characterized in that the ferrite sintered magnet has a mean

grain size of 0.8 μm or less.

20. The ferrite sintered magnet according to claim 18, characterized in that the ferrite sintered magnet has a mean grain size of 0.6 μm or less.

21. The ferrite sintered magnet according to claim 18, characterized in that the ferrite sintered magnet has both a coercive force of 3.5 kOe or more and a residual magnetic flux density of 4.0 kG or more.

22. The ferrite sintered magnet according to claim 18, characterized in that Sr and Ba are both present as the element A.